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UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Office of Administrator
Washington, D. C.

REPORT OF THE FIRST MEETING OF THE
COTTON AND TOBACCO RESEARCH ADVISORY COMMITTEE

February 24-27, 1964
Knoxville, Tennessee

Membership of the Committee

- *Mr. Norris C. Blackburn, President Union Compress and Warehouse Company,
Memphis, Tennessee
Mr. C. Stuart Carr, Jr., Vice President, Universal Leaf Tobacco Co., Inc.
Richmond, Virginia
Mr. Holmes Ellis, General Manager, Western Dark Fired Tobacco Growers Assn.
Murray, Kentucky
Mr. John P. Elting, Director of Research, The Kendall Company, Charlotte,
North Carolina
Mr. Kenneth E. Frick, Kenmar Farm, Bakersfield, California

Dr. William L. Giles, Vice President for Agriculture, Mississippi State
University, State College, Mississippi
Dr. Thomas W. Gilmore, Jr., Fern Crest Plantation, Sandersville, Georgia

*Mr. Spencer B. Hanes, Executive Vice President, R. J. Reynolds Company,
Winston-Salem, North Carolina
Dr. Kenneth R. Keller, Assistant Director, North Carolina Agricultural
Experiment Station, Raleigh, North Carolina
*Mr. Jack W. Kidd, President, Farmers and Ginners Cotton Oil Company,
Birmingham, Alabama
Mr. Max B. Meyer, Vice President, General Cigar Company, Inc., New York,
New York
Mr. Vernon W. Scott, Tillar and Company, Tillar, Arkansas

Mr. George H. Struthers, Vice President in Charge of Merchandising and
Director of Sears, Roebuck & Co., Chicago, Ill.
Mr. Jack D. Towery, Textile Engineer for the Moss-Gordin Company,
Lubbock, Texas
Mr. Frank Williamson, Darlington, South Carolina
*Unable to attend

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Additional copies of this report may be obtained from James F. Lankford,
Executive Secretary, Cotton and Tobacco Research Advisory Committee,
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of Agriculture, Washington, D. C.

PREFACE

The first meeting of the newly constituted Cotton and Tobacco Research Advisory Committee was held in Knoxville, Tennessee, on February 24-27, 1964. The Committee made a systematic review of the Department's cotton and tobacco research program. The primary basis for this review was the Cotton and Cottonseed; and the Tobacco Research Progress Reports prepared especially for the Committee's use. This source of information was supplemented by oral reports from the following USDA Research Divisions: Crops, Entomology, Agricultural Engineering, Eastern and Southern Utilization Research and Development, Clothing and Housing, Market Quality, Transportation and Facilities, Standards and Research, Economic and Statistical Analysis, and Marketing (FCS).

Additional information was presented regarding research needs in the cotton and tobacco industries at the Public Session Meeting on February 24, 1964 by the following persons: Mr. Paul D. Goddard, Burley and Dark Leaf Tobacco Association, Dandridge, Tennessee; Mr. R. A. Montgomery, Secretary of the Staple Cotton Cooperative Assn., Greenwood, Miss.; Mr. George Pfeiffenberger, Executive Vice President, Plains Cotton Growers, Inc., Lubbock, Texas; Mr. Carl Cox, Director, Cotton Research Committee of Texas, Dallas, Texas; Mr. Edward H. Bush, Executive Vice President, Texas Cotton Ginners Assn., Dallas, Texas; Mr. Robert E. Collins, Executive Vice President, Arkansas-Missouri Cotton Ginners Assn., West Memphis, Ark.; Dr. E. I. Stearns, Chairman, American Assn. of Textile Chemists and Colorists, Bound Brook, N. J.; and Mr. W. R. Martin, Jr., Technical Director, A.A.T.C.C., Durham, North Carolina.

In addition to the oral reports, the following persons, who were unable to attend the meeting, submitted written reports for Committee consideration: Mr. Malcolm B. Seawell, Exec. Secy., Tobacco Assn. of the U. S., Raleigh, N. C.; Mr. B. F. Smith, Exec. Vice Pres., Delta Council, Stoneville, Miss.; Mr. Jack W. Kidd, Pres., Farmers and Ginners Cotton Oil Co., Birmingham, Ala.; Mr. J. V. Morrow, Exec. Secy, Associated Tobacco Manufacturers, Inc., Washington, D. C.; Mr. Ralph C. Lasbury, Jr., Exec. Dir., The Shade Tobacco Growers Agricultural Assn. Inc., Windsor, Conn.; Mr. J. M. Mosely, American Tobacco Company, Richmond, Virginia.

Dr. Nyle C. Brady, Director of Science and Education, Office of the Secretary, USDA, served as Chairman of the Committee; and Dr. E. C. Elting, Deputy Administrator, Agricultural Research Service, USDA, served as Vice Chairman.

After a careful review of all the material available, the Committee submitted the following recommendations to the Secretary of Agriculture.

COTTON AND TOBACCO RESEARCH ADVISORY COMMITTEE

REPORT AND RECOMMENDATIONS

GENERAL COMMENTS

The Committee is convinced that the future of cotton and tobacco as major economic agricultural crops in the United States depends upon the effective cooperation within and between all segments of each industry including the United States Department of Agriculture, Land Grant Colleges, public agencies, and private organizations in bringing to fruition new knowledge and ideas on important problems and opportunities. The culture, breeding, disease, insect, harvesting and quality investigations as well as the processing, marketing, and manufacturing phases of both crops are complex and are surrounded by complicated forces that are extremely difficult to evaluate.

The Secretary of the Department of Agriculture is to be commended for the positive action in attempting to improve the image and role of agricultural research with the creation of the position of Director of Science and Education, and strongly recommends that an Assistant Secretary of Agriculture for Science and Education be permanently established. An even more significant step forward has been the securing of the services of an outstanding scientist and administrator with vision, foresight, imagination, and a clear perspective. A man with outstanding leadership abilities is essential since scientific and technological advances in the next decade will undoubtedly be some of the most far reaching in the history of cotton and tobacco. The Committee commends the Secretary's decision to have someone at the Assistant Secretary level serve as Chairman of the Research Advisory Committees.

Never before in the history of the cotton and tobacco industries has the grower, manufacturer, and general public been so conscious of the word research. Presently, there seems to be a rare opportunity to emphasize the untold advantages, not only in answering questions about research, but also in apprising the public of the innumerable benefits brought about by it. Research has placed in the hands of the growers numerous varieties, chemicals, fertilizers, cultural methods, etc. which can, if properly used, maintain the United States' position as the producer of the world's best tobacco and cotton. Wide dissemination and application of this information is recommended.

The complex and comprehensive work of the (1) National Agricultural Research Advisory Committee, (2) Life Science Panel of the President's Science Advisory Committee, and (3) the Committee on Agricultural Sciences is impressive and should continue to receive a high priority. The Committee was particularly pleased to learn of the Department's philosophy and plan for utilizing monies for contracts and grants with public agencies and more specifically the Land Grant Colleges. We

would expect that this one phase of the program alone would play a key role in making more effective use of scientific talent and stimulate more cooperative research between the various public and private agencies.

The review of the cooperative cotton, and burley and dark tobacco research programs conducted by scientists of the University of Tennessee and the Department were interesting and enlightening. It ably indicated the responsibility and opportunity that educational institutions and their cooperating agencies have in providing information, leadership, and the training of future scientists to bring about changes in an expeditious and constructive manner. The results of studies presented by Department scientists, in addition to their typed Progress Reports and Research Proposals, provided the members of the Committee with an understanding of the influence of public programs as they relate to the problems of the producer, the processor and the consumer. The members have been impressed by the need for supporting and expanding current work and the dire need for the initiation of new projects with special emphasis on the fundamental aspects.

The Committee commends the Department for the quality of its fundamental research at the Eastern and Southern Regional Utilization Research and Development Divisions, and recommends greater emphasis on "in depth" studies in areas relating to farm research. It is recognized that this approach for the latter group has not been possible in the past because of limited funds and the need and demand for answers to practical application problems. With the availability of additional funds, it is expected that more attention will be concentrated on basic investigations. The Committee feels that from the standpoint of the producer, the processor, the consumer, and all related industries, costs of production should be decreased and quality of the product increased through support of fundamental studies on Farm Research, Agricultural Engineering, Utilization, Marketing, and Economic Research.

The Committee recognizes that new and important responsibilities may be placed upon the Department of Agriculture as a result of the Surgeon General's Committee Report on Smoking and Health. The attitude of the Department with regard to this report has been well expressed by Dr. N. C. Brady, Director of Science and Education of the Department, in his statement before the Subcommittee on Tobacco of the House Committee on Agriculture on January 29, 1964. Copies of his statement have been made available to the members of this Committee and we fully endorse the position expressed by Dr. Brady.

Whatever work the Department of Agriculture may do as a direct outgrowth of the Surgeon General's report will undoubtedly require substantial additional funds. The Committee strongly urges that these funds be, in fact, additional funds and not monies diverted from existing research work being done by the Department. Current research is

too vital to the entire industry, from the tobacco farmers through the ultimate consumer, to risk any reduction in its scope.

The Committee emphasizes the great need for the Department to give special attention to and concentrate on long range objectives, recognizing that research is costly and time consuming. The Committee also recognizes that the scientist needs to be constantly alert to new developments which offer opportunities and, therefore, must constantly be aware of the current work of others in his and related fields. The Committee feels rather strongly that scientists will make their greatest contributions in providing answers to the unknown when they are situated in a stimulating academic environment and in close proximity to the immediate problems.

The Committee is indebted to those representatives from both the cotton and tobacco industry who so graciously shared their constructive comments regarding immediate and future research needs. In order to make these presentations more effective, it is suggested that Committee members assume the responsibility of inviting and urging leaders from industry and grower organizations to send participants and that sufficient time be allocated to ask questions and discuss their proposals.

Although the Cotton and Tobacco Committee members have enjoyed the experience of meeting together, they unanimously recommend, that in the best interests of the Department, that these commodity groups convene as individual units in the future.

A. FARM RESEARCH - TOBACCO

The recent increase of regular appropriations and the transfer of CCC funds to research will be extremely helpful in providing much needed financial support for new and existing Farm Research Projects. In view of the current situation facing all segments of the tobacco industry, there exists an urgent need for greater emphasis on research in the following areas:

Tobacco Quality

The word "quality" may have different meanings to different people. Yet, quality in tobacco is simply the degree to which it is acceptable to the consumer from the standpoint of its desirability. Tobacco is currently evaluated on the basis of certain intangible, visible, physical, and chemical characteristics. The growth of tobacco plants and their resultant end products may be influenced by many cultural and handling practices from the selection of the seed on through to the production of the end product and its final acceptance in the trade. The independent and/or dependent relationships of the visible, physical, and chemical characteristics of tobacco need to be recognized and defined with respect to their role in influencing quality with the

ultimate objective of measuring quantitatively these quality factors. The future of tobacco production in the United States may well be dependent upon the results from successful determination of factors associated with tobacco quality. Not only is an understanding of tobacco quality needed to meet the foreign and domestic requirements, but also continued trade with other countries is seriously threatened. Tobacco can maintain its rightful role in the economy of this country provided that attention is directed to isolate those factors which collectively determine its quality and, in addition, provide information as to how they may be modified to meet changing demands.

Cigar Filler Tobacco

The cigar industry is continually depleting its already low stocks of Cuban filler tobacco imported into this country prior to the embargo of February 1962. There is a continuing need for a substitute for this tobacco, which would be substantially similar to the original in both flavor and aroma. The development of such a substitute will come about only if sufficient effort is devoted to the task.

The Committee, therefore, re-emphasizes its recommendation of last year that research in the fields of both culture and breeding be aimed at solving this pressing problem. Such research should be concentrated in those geographical areas most likely to yield effective results.

Tobacco Mechanization

The unusual problems now facing the tobacco industry magnify the need for research which will substantially reduce labor requirements. Mechanization in the areas of highest labor input will enable the United States to maintain its share of exports. The present research work on mechanical harvesting, bulk curing, and barn utilization offers promise of drastically reducing labor requirements and lowering production costs. The research effort in the area of agricultural engineering should be expanded to include the mechanization of all phases of cigar wrapper production.

Insect Control and Insecticidal Residues

The Committee recognizes that considerable progress has been made in the effective control of insects that attack tobacco. The Committee is also aware that insects are known to have developed resistance to certain insecticides. Realizing the necessity for insect control on tobacco and the hazards of insecticidal residues on the leaf, it is recommended that research be directed to seek means for eliminating certain insect populations or developing control programs that would be free of causing residues. The combined or individual use and value of black light traps, stalk destruction, insecticides, sex attractants, and biological control techniques should be thoroughly evaluated.

Weed Control

Weeds in tobacco beds reduce vigor and quality of transplants. Weeds in tobacco fields require expensive hand labor, seriously interfere with the mechanization of tobacco harvesting and increase the cost of production. Although over 100 herbicides have been evaluated for weed control in flue-cured tobacco by the North Carolina Agricultural Experiment Station alone over the past 12 years, research by the Department is urgently needed to pursue this important developmental and evaluation program.

Sucker Control

The Committee is pleased that additional funds have been made available to the Department for use in searching for acceptable chemical agents that will effectively control sucker growth on tobacco. Since there is no way to prevent the use of excessive amounts of maleic hydrazide by individual growers, the Committee urges the Department to stress the harm that this chemical may cause on the quality of the leaf when used in excess and particularly during unfavorable weather conditions. The Committee commends the Department for their diligent program in seeking a satisfactory non-manual method for controlling suckers on tobacco and strongly recommends a continuation of this program.

B. FARM RESEARCH - COTTON

Need for Uniform Stands

Mechanized cotton production is now a reality. Even the smallest cotton producers have adapted machine methods to their farming operations. Investments in equipment have substantially increased fixed costs in cotton production. In order to profit from these investments, per acre yields must be maintained at moderately high levels. Additionally, mechanization demands a uniform stand of plants in the field.

Obtaining regular stands of vigorous seedlings is one of the major uncertainties in cotton production today. This problem is common to the entire cotton belt.

Although progress has been made in controlling seedling diseases, no unified research effort has been directed toward a study of the factors which influence seed germination and seedling emergence. The complexity of the problem requires the attention of a team of scientists from several disciplines.

Plant Physiology and Ecology

Isolation from the cotton plant of the growth regulator abscisin and substances which influence the behavior of the boll weevil are indeed notable contributions to knowledge. These exciting discoveries are invaluable to our understanding of the growth and development of the cotton plant. They also indicate a need for additional fundamental research in the area of plant physiology and biochemistry.

Long range objectives of cotton plant physiology should be an understanding of plant environment interactions. In order to accelerate accumulation of knowledge in this complex area, a phytotron should be established at some center of research.

Entomology

The very thorough research effort being made on the boll weevil is absolutely essential, and it is hoped the result will lead to complete eradication. However, this effort is contrasted with what appears to be a lack of complete and coordinated plan of attack on the other cotton insects, such as: bollworm, lygus bug, etc. A comprehensive attack on these other important cotton insects needs to be planned and then carried out.

Soils

Investigations of the physical and chemical properties of mid-south and southeastern soils (similar to those currently underway at Shafter) is urgently needed. Problems with poor taproot development and consequent severe limitation of yield potential are appearing with rapidly increasing frequency throughout the Southeast. Research on primary factors involved and development of engineering and chemical methods of correction are of major importance.

Agricultural Engineering

Expansion and pursuit of research currently underway on components of planting equipment are of more vital importance than growers themselves realize; incorporation of the best information already available would, according to ample evidence, give marked improvement of stands with consequent reduction in unit cost.

Spindle harvesting equipment has not yet handled efficiently high-yielding cotton. Excessive field loss must be corrected if increase in yield is to be reflected in lower unit cost. The work in process on "once-over" harvesting suggests a minimum harvesting cost for the producer. Mechanical stripping has proved so successful in the short cottons that work should be directed toward evaluation of stripping of medium staple cottons. An entirely new concept of mechanical harvesting may be essential to increase field efficiency. Research of this

type is the particular responsibility of ARS and should be expanded and well supported.

Ginning

It has been brought to the attention of the Committee that ginning studies conducted at Stoneville, Mississippi, are of comparatively little value in solving ginning problems for the arid cotton producing areas of the western United States. Differences in type of cotton fiber produced and in the atmospheric conditions under which the cotton is matured, harvested, stored, and ginned provide a reasonable basis for the difficulties encountered. The Committee recommends that a micro-ginning system similar to that now in operation at the Stoneville ginning laboratory be installed at Mesilla Park.

Power requirements of modern gins pose a serious cost problem. Since a great deal of the power involved is used simply in handling from the trailer to the bale, intensified research on alternative and more economical methods of material handling in the ginning process should be undertaken.

Air pollution by modern cotton gins has become a serious problem because of the greater amounts of waste now handled by gins and the rapidly increasing population density around gins in many areas. Currently available methods of waste disposal are both expensive and only partially effective. An entirely new research approach to waste disposal at the gin is needed. If such a process involves incineration, an added benefit of such research might be the return of usable heat into the ginning system.

Chemical Residues

It should become a matter of course to include full investigation of the fate of herbicides, insecticides, defoliants, and any chemicals which are applied on cotton land or plants as a part of, and made simultaneously with evaluation of their effectiveness and utilization.

Facilities at Fargo, North Dakota, are available for such work, and should be utilized to the maximum extent possible to determine soil, seed, and fiber residues in cotton.

C. UTILIZATION RESEARCH AND DEVELOPMENT

General. The Department's utilization research and development program is considered by the Committee to be extremely vigorous and very rewarding. For example, the benefits to the cotton industry from developments at the Southern Utilization Laboratory are immeasurable. The tobacco utilization program is similarly outstanding, but inadequate in relation to the great current needs in this area.

The Committee urges that a balanced utilization research program be maintained, particularly in the field of tobacco and cotton quality. The maintenance of both our domestic and foreign markets is dependent on the definitive characteristics of tobacco and cotton.

The need for expanded utilization research has been emphasized by Secretary Freeman. Acceptance of farm products as industrial raw materials depends upon their chemical and physical properties. These properties must not only be measurable, but must also be subject to modification and improvement.

In the public presentations, the need for analytical measurements and instrumentation was stressed by a number of industry representatives. The problems connected with ginning wastes, processing of cottonseed products, and other potential avenues for utilization research were also emphasized.

1. UTILIZATION RESEARCH - TOBACCO

The Committee is favorably impressed with the excellent work being done at the Eastern Utilization Research and Development Division. Previous Tobacco Advisory Committees have stressed the importance of basic studies on the chemistry of tobacco and smoke, and its relationship to quality. It is evident from reports submitted to this Committee that the research group at Eastern Utilization Research and Development Division has made substantial progress in this direction. The Committee, therefore, strongly urges the continuation and expansion of research work at this facility. Such work would not only be of great importance to the industry but would also serve as a valuable adjunct to other work being done in related fields in connection with smoking and health.

Specifically, the Committee recommends continuation of work on fundamental aspects of leaf and smoke composition. The studies should include a basic investigation of new methods for isolating and identifying chemical constituents of leaf and smoke. These newly developed methods can then be used in studies on all leaf and smoke components which may have a role in a large number of quality problems related to the production and utilization of tobacco products, including such diverse phases as leaf aroma, smoke aroma and flavor, and insecticide residues found in cigarette smoke.

In addition, the Committee recognizes the need for basic research work on the fermentation of cigar tobaccos. This is an area that has received virtually no attention in the past. The widespread use of sucker inhibitors on cigar filler tobaccos has resulted in changed reactions to standard fermentation procedures, and the introduction of new varieties of cigar wrapper tobaccos and other factors have resulted in far-reaching changes in fermentation techniques on this type of tobacco as well. Therefore, basic research in this field holds great promise not only for expanded knowledge, but for improvement of quality.

UTILIZATION RESEARCH - COTTON

The Committee urges maximum effort in basic studies dealing with the chemical and physical properties and structures of cotton. Industrial needs for this information remain paramount if cotton is to maintain or increase its share of the fiber market.

The importance of relating fiber properties to mechanical processing and product properties cannot be over-stressed. As was brought out at the public session, additional fiber properties not now conventionally determined should be explored in relation to mechanical processing. At least the present level of activity should be maintained.

The need for additional markets for cotton in its competitive position may warrant development of machinery not normally available. The Department must be prepared to develop novel, new machinery and equipment to accommodate new developments resulting from basic investigations of chemical and physical properties. The Committee endorses the fundamental investigations which may lead to radically new methods of processing.

The Committee endorses and commends the chemical work which has produced easy-care cotton fabrics without loss of strength. A continued broad basic investigation of the mechanics by which improved wash-wear cotton fabric properties can be achieved should assume a prominent position in the utilization program.

The introduction of synthetic fibers with highly specialized properties has brought new competition into the textile market, with the subsequent loss of established cotton markets, particularly those where one or more specific properties, such as resistance to flame, heat, rot, and weather, are important. Research should be expanded to develop and reduce to practice new and durable chemical modifications and processes that will improve cotton products for specific end uses where resistance to chemical and microbiological degradation is required. Research on stretch cotton products should be continued at current levels.

The Committee feels that the work in cottonseed processing and products is excellent and continued work in food, feed, and industrial products and processing should be emphasized and maintained at the same level of effort.

D. MARKETING AND ECONOMIC RESEARCH

1. Cotton and Cottonseed

Market Quality

The Committee re-emphasizes its previous recommendation for development of instruments for rapid and accurate measurement of all principal fiber

and sample properties, and further for the introduction of these instruments into the classing service as rapidly as possible. The acceptance and interest in this area has already been shown in many segments of the industry, and was strongly emphasized in the public statements made before the Committee.

Instruments for determining fiber length (and length distribution or uniformity), color, and fiber diameter have now reached classing office workability. Instruments for determining trash content, fiber strength, elongation, and friction are urgently needed and should receive the maximum effort in research and development. Of course, the value of such measurements to the cotton industry is entirely dependent upon the submission of a representative sample, uniformly prepared. Devices which will accomplish this at the gin have been available for some time. A study of the reasons for their lack of acceptance by the trade would be in order. It is only logical that their use be required for samples which are submitted for analysis.

Price Structure

Assignment of relative value to each parameter by end use is essential to the formulation of a rational price structure for cotton. Even though a greater participation of the free market may be necessary before this can be totally and accurately reflected in the price, economic research to this end should keep pace with the development of instrumentation.

Cost Reduction Potential in Packaging

There are very substantial reasons for ERS to investigate the economics of alternative methods for packaging cotton, for example, in a rolled form such as a picker lap. Effective containers might replace the present bale coverings which have been criticized constantly since cotton has come under severe market pressure. If figures indicate economic advantages of this method, and pilot operations bear out the practicability, the industry can speedily work out detailed changes in handling to accommodate itself.

Consumer Use Research

Work should be confined to an annual evaluation of end uses of cotton products. All segments of industry can use such figures to base plans for operations and pricing. Figures should be developed on a net poundage basis.

Cottonseed Quality

Measurements of cottonseed quality are important to many gins in making proper settlements to producers. In order for these measurements to be practical, they must be quick and inexpensive. We recommend the development of instruments and processes necessary to calculate grade of small lots of cottonseed for use at gins.

2. Tobacco

Residues

The Committee strongly recommends expanded and vigorous research on a continuous program designed to provide accurate data on the residues from insecticides applied to growing tobacco and also from fumigants used in space treatments of redried tobacco in storage. Serious residue damage may occur from improper insecticide treatment in the field. Likewise, heavy residue may result from multiple fumigations necessary in storage to control infestation. Ineffective or harmful treatment of tobacco in storage can influence the value of large stocks now held in storage. Research should be directed toward the development of chemicals which will involve no residue risk to the grower and prevent residue damage in storage. As a means of reducing or eliminating those insects causing damage to the tobacco plant, the present research on biological control and other research avenues should be urgently pursued.

Tobacco Quality

There continues to be a pressing need for research to define and express tobacco market quality. Progress in this area is significantly lacking, although there was decided improvement in the 1963 flue-cured grade designations. Efforts should be made toward agreement on terminology that will be common and familiar to all segments of the industry. Tobacco growers, seed breeders, U.S.D.A. inspectors and buyers would benefit from an accepted system of analyzing and identifying tobacco quality at the market place.

Production Control Study

The Committee feels that a complete study of alternative plans for controlling volume of production, instead of acreage, should be undertaken as soon as possible. Immediate steps are necessary to apply effective production controls in the growing of flue-cured tobacco. Historically, increased yields have followed acreage reductions and as per acre yields have gone up the leaf quality produced has been less desirable. If the trend is continued whereby more and more tobacco is grown on fewer and fewer acres, we cannot possibly expect to retain our quality superiority over the rest of the world. A production control program seems to be the only answer.

We believe that a prerequisite to the increase in the exports of tobacco is a thorough analysis of the terms and conditions under which the level of our tobacco exports during the last several years has remained status quo, while world tobacco usage has increased five percent annually. The importance of price, as well as quality, should be studied in an effort to determine how much and what kind of tobacco would be exported at various price levels.

Tobacco Situation

The publication "The Tobacco Situation" continues to be a valuable source of useful information. It's editorial staff are to be commended along with those contributing to similar publications.

